No. 49-2513

**OWNER'S MANUAL**

Please read before using this equipment.

# Indoor/Outdoor Black & White Security Camera

## with Motion Sensor

RadioShack®

# INTRODUCTION

Your RadioShack Indoor/Outdoor Black & White Security Camera adds safety and security to your business or home. Use it as a component of an audio/video observation system in your business to monitor low-light store-rooms, warehouses, entry/exit-ways, or a reception area from one central location. In your home, you can observe your backyard or patio area, even at night with minimal lighting. The security camera can also check activity in your driveway or interior areas with equal clarity. (This observation system must be connected to your existing TV or an optional monitor.)

The system's features include:

**CAMERA**

**CCD (Charged Couple Device) and PIR (Passive Infrared) Sensor** — provides superior-resolution images even in low-light conditions.

**Built-In Speaker and Microphone** — lets you speak with individuals near the camera.

**Waterproof Housing** — lets you install the camera indoors or outdoors.

**Built-in 6 LED Lighting** — enhances low light viewing at a light level of 0.5 Lux at 2 meters distance.

**Sensitive Motion Detection with Wide 110° Coverage at 27 feet (8 meters)** — detects motion in a wide protected area at a practical distance and triggers the remote motion alarm to alert you.

**65-Feet (20-Meter) Pre-Wired Cable** — lets you install the camera at a distance from the distribution box.

**DISTRIBUTION BOX**

**Connection Center** — makes connection of all components easy and quick.

**Audio/Video In and Out Jacks** — lets you see and hear activity in the protected area through your TV or monitor, and record the action on a standard VCR.

**Convenient Remote Motion Alarm Jack** — makes connecting the supplied remote motion alarm easy.

**Aux Jack** — lets you connect an optional VCR controller to automatically record both the sound and picture using a standard VCR.

**NO/C/NC Terminal Block** — triggers an optional external alarm or similar device.

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### REMOTE MOTION ALARM

**Tone and Light Indicator Warning** — alerts you to check the TV or the monitor for any disturbance or activity detected by the camera's motion sensor.

**Tone On/Off Switch** — lets you activate or disable the tone alarm.

## PACKAGE CONTENTS

- Camera with permanently attached 65-ft (20-m) cable
- Distribution box
- Remote motion alarm
- Distribution box connection cable, 3.3 ft (1 m)
- Regulated AC adapter, 120VAC 12VDC @ 400mA
- Camera mounting template
- Double-sided adhesive material to mount the remote motion alarm
- Screws and anchors for mounting the camera (2)

  **Note:** The provided screws and anchors are usable for mounting the camera to sheet rock, wall board, and similar wooden surface materials. For other materials (brick, or concrete, for example), use appropriate mounting hardware availble from your local hardware store.

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# PREPARATION

This camera system includes three components: the camera, the distribution box, and the remote motion alarm. Each has suggested mounting guidelines and a connection procedure. Plan the location of each device carefully, taking into account cables, cable lengths, areas to be monitored, and the appropriate hardware needed to mount each item.

## CAMERA INSTALLATION GUIDELINES

Before you install the camera, carefully plan where and how you will position the camera and where you will route the cable that connects the camera to the distribution box. Keep in mind the following when planning the installation.

- Select a location for the camera that provides a clear view of the area you want to monitor, is free from dust, and is not in line-of-sight with a strong light source or in direct sunlight.
- Plan the cable's route so it is not close to power or telephone lines, transformers, or other electrical equipment that could interfere with, or accept interference from, the system.
- Select a location for the distribution box which is convenient for connecting all the other components and within the reach of all connection cables.
- Select a location for the camera so the ambient temperature is between 14° and 113°F (–10° and 45°C).
- Before starting a permanent installation, have another person hold the camera while another person verifies its performance as you observe the monitor or TV. This helps determine the best final position for your camera.

## LIGHTING AND YOUR CAMERA'S LOCATION

The camera is sensitive to infrared radiation which is invisible to the human eye. Body heat is one example of infrared. Though highly sensitive, the camera cannot "see" in total darkness over a wide area.

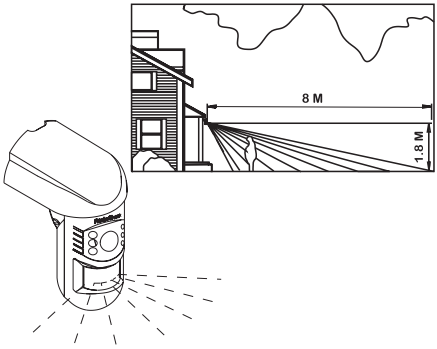
To assist the camera's night vision, install a 100-watt incandescent lamp (which is rich in infrared radiation) to illuminate the camera's viewing area. You can also use a small incandescent flood lamp. Halogen lamps, other high-pressure outdoor lamps, and fluorescent lighting are poor in infrared and are not therefore recommended.

# PLANNING YOUR CAMERA LOCATION

When you choose a location and position for the camera, take into account how the motion sensor operates. A passive infrared system operates by sensing body heat or the difference between a person's body heat and a nearby building or a wall.

When the temperature of the moving body and its surrounding area are close in value, detection is more difficult. The motion detector's infrared beams radiate outward like the slats of a wooden fence.

Motion that crosses these "slats" activates the detection circuit. Motion which parallels the slats might not. For the best results, position the camera so expected motion cuts across the slats.




Also, if sound is important to you, choose a location so sound near the camera is picked up by the built-in microphone. (for example, located at your front door). For a better viewing angle, position the camera above eye-level and pointing down. Avoid viewing areas where half the area is in bright sunlight and the other half is dark.

**Important Sound Note:** Do not install the camera or the distribution box so either of their built-in microphones are near or point directly toward the speaker of your TV or monitor. Otherwise, you might get audio feedback (a squealing sound) which will interfere with the sound source when you use the **TALK** button on either the distribution box or camera.

## Testing the System

Before you permanently mount all the components (monitor, camera, distribution box, and remote motion alarm) in their proposed locations, we recommend you test them as a system.

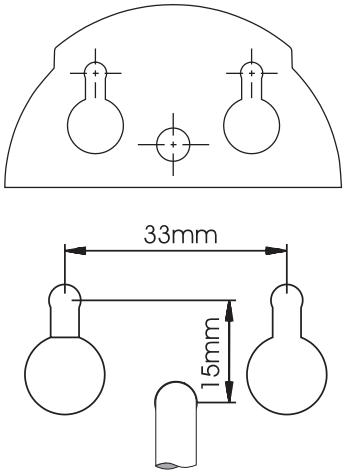
Connect them according to the wiring diagram (see “Making the Connections” on Page 9), then plug the AC adapter into a standard power outlet. Turn on your TV or monitor. The remote motion alarm beeps twice and the warning alert lights steadily. After 60 seconds, the camera's detection and motion warning functions are ready.

To test the system, move about 3 feet in front of the camera. The motion warning tone sounds twice and the red indicator on the top of the remote motion alarm flashes, indicating the camera detects motion. Have someone switch the connected TV to the video input for viewing the protected area, or (if you use the Cat. No. 49-2511 Security Monitor) select the correct channel input. The image seen by the camera should appear on the TV or monitor. If the system operates properly, proceed with the mounting of the components.

If no image appears, carefully check each cable to be certain that none have reversed connections (audio and video) and that all system components are receiving power.

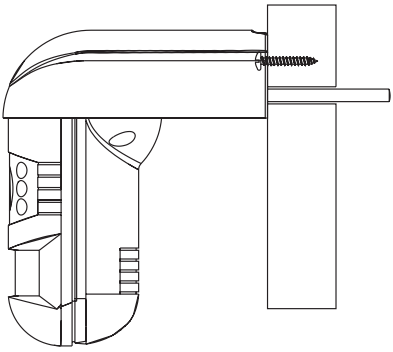
## Mounting the Camera

Once you have successfully tested the system, follow these steps to install the camera.




1. Use the supplied mounting template to mark the mounting holes at the selected location.
2. Drill two holes at the marked locations, then thread a supplied screw into each hole, letting the heads extend about $^{3}/_{16}$-inch (5 mm) from the wall. Drill a third hole below and between the mounting holes to permit the camera cable to be inserted through the surface.

3. Place the two $^{7}/_{16}$-inch (11 mm) slotted keyholes on the back of the camera bracket over the wall mounting screw heads and slide the camera downward to secure it.



4. Hold the camera mounting bracket and swivel the camera head until it is in position for the desired view.

## Mounting the Distribution Box

Choose a location for the distribution box taking into account:

- the cable length
- the camera location
- the location of the TV or monitor you plan to use
- space necessary for access to the box when it is used for two-way speech communication with the camera

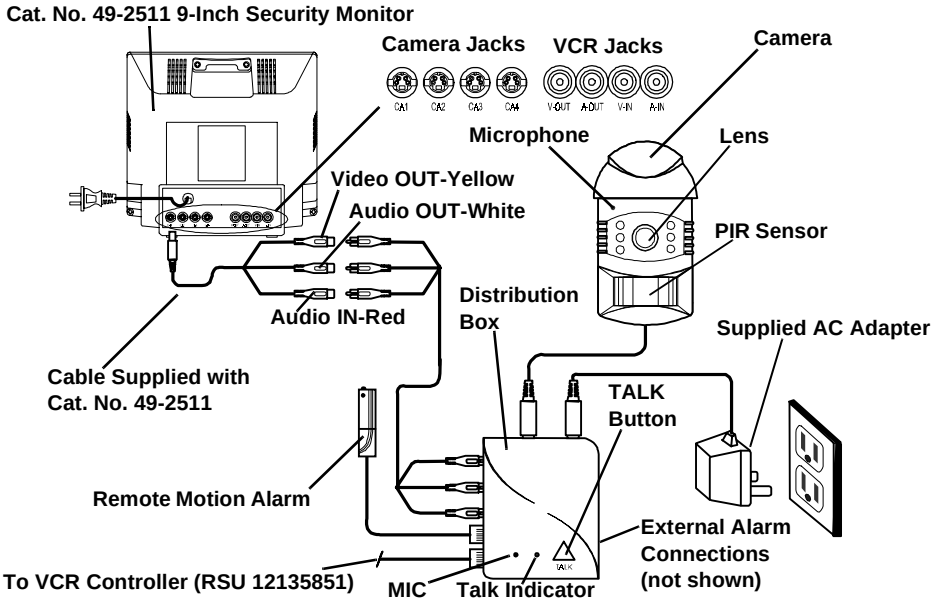
Mount the box to the selected surface with hook and loop fastener tape (not supplied), available at your local RadioShack store.

## Mounting the Remote Motion Alarm

The remote motion alarm is designed to be mounted on your TV or monitor. You can also mount it on a wall or other surface that is within the reach of its 6-foot (2 m) cable. For smooth surfaces, use the supplied double-sided adhesive pad. For other surfaces, use a pan-head screw with a $^{3}/_{16}$-inch (4-mm) diameter head to fit the slotted keyhole on the back of the alarm case.

**Caution:** When attaching the alarm to a TV set, do not mount it so it covers any ventilation slots or in an area that becomes hot.

# MAKING THE CONNECTIONS




**Cautions**:

- Do not attempt to open the camera's case, as this will destroy its weather resistant quality and will void the system's warranty.
- Always disconnect all components from the AC power during installation.

Follow these steps to connect the system's components.

1. Connect the camera cable's mini-DIN plug to **CAMERA INPUT** on the back of the distribution box.

   **Caution:** If your camera is located less than 65-feet from the distribution box, coil the cable carefully to take up the slack and secure it in place. Do not cut or splice the cable nor leave it unsecured.

2. Connect the supplied AC adapter's barrel plug to **12VOLT DC** on the distribution box.

   **Caution:** You must use a Class 2 power source that supplies 12 volts DC and delivers at least 400 mA. Its center tip must be set to positive and its plug must fit the distribution box's **12VOLT DC** jack. The supplied adapter meets these specifications. Using an adapter that does not meet these specifications could damage the camera, your monitor, or the adapter.

3. Use the supplied A/V cable's yellow plug to connect **VIDEO OUT** (yellow) on the the distribution box to a video input on either your security monitor or a standard TV's A/V input jacks.

4. Use the supplied A/V cable's white plug to connect your monitor's or TV's audio input jack to **AUDIO OUT** (white) on the distribution box.

   **Notes**:

   - If you use this camera with the Cat. No. 49-2511 9-Inch Security Monitor, use the supplied 3-foot connecting cable to connect the camera to one of the CA inputs on the monitor. Follow the instructions supplied with the monitor.
   - To use a VCR with the Cat. No. 49-2511 9-Inch Security Monitor, connect the output jacks of the security monitor to the A/V input jacks on the VCR. If you use a standard TV instead, connect the supplied cable from the distribution box to the VCR's A/V input jacks. Then connect the VCR's A/V output jacks to the TV's A/V input.
   - To control a standard VCR so an alarm starts the VCR recording, use an optional VCR Controller (RSU 12135851), available through your local RadioShack store. Connect the controller to **AUX** on the distribution box

5. Connect the RJ-6 connector on the remote motion alarm's cable to **BUZZER** on the distribution box.

   **Note**: To extend the remote motion alarm's cable, you can use RJ-6 extension cable (available through your local RadioShack store). However, extending the cable more than 20 feet (6m) might result in unreliable operation of the remote motion alarm.

6. Connect any other alarm devices (such as a siren or xenon strobe light) to the **NC/C/NO** terminal block according to the device's owner's manual. Your local RadioShack store has many appropriate accessories.

   **Note**: If your TV or monitor has a built-in microphone and output jack, you can use the supplied A/V cable's red plug to connect that output to **AUDIO IN** (red) on the distribution box.

7. Once you have made all of the connections, turn on your monitor or TV. Then, connect the AC adapter from the camera to a standard AC outlet. The remote motion alarm's indicator lights steadily.

## TESTING THE CAMERA'S SENSOR

Walk in front of the camera to trigger and test the camera's infrared sensor. The remote motion alarm's light flashes for 1 minute and the electronic alert tone sounds twice. To silence the tone but have the warning indicator flash to alert you (silent warning), press **BUZZER ON/OFF.** The indicator turns off.

## SYSTEM STAND-BY STATE

After about a 1 minute warm-up period, the system enters a stand-by state. The remote motion alarm alert indicator lights steadily and the tone alarm is silent. When the camera's motion detector senses movement:

- The remote motion alarm sounds a tone twice and the red indicator flashes for 1 minute to alert you to check the monitor or TV. If you are watching a broadcast on a standard TV, switch the TV to its A/V input.
- Any external warning devices connected to either the box's **NC** and **C** or **NO** and **C** contacts activate for 60 seconds.
- The image from the camera appears on your TV or monitor.

If you use the Cat. No. 49-2511 monitor with two or more cameras connected to the monitor's **CA** jacks, label each motion alarm to match the camera (CA1, CA2, CA3 or CA4).

When the alarm for that camera sounds, you can quickly press the correct **CA** button on the monitor to view the camera triggering the alarm.

The system returns to the standby state once the infrared sensor no longer detects any movement in the area.

## USING THE MICROPHONE

The camera and the distribution box have built-in microphones. The camera's microphone is always on. Follow these steps to have a conversation with someone near the camera.

1. Press **TALK** on the distribution box. The indicator lights. Speak into the microphone next to the indicator.
2. To hear the other person's reply, release **TALK.**

   **Note:** The 9-Inch Security Monitor contains a built-in microphone. You can hold down either **TALK** on the monitor or **TALK** on the distribution box to speak to the camera.

# CARE AND MAINTENANCE

Your RadioShack Indoor/Outdoor Black & White Security Camera is an example of superior design and craftsmanship. The following suggestions will help you care for your security camera so you can enjoy it for years.

Keep the security camera dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Use and store the security camera only in normal temperature environments. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.

Keep the security camera away from dust and dirt, which can cause premature wear of parts.

Handle the security camera gently and carefully. Dropping it can damage circuit boards and cases and can cause the security camera to work improperly.

Wipe the security camera with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the security camera.

Modifying or tampering with the security camera's internal components can cause a malfunction and might invalidate its warranty. If your security camera is not performing as it should, take it to your local RadioShack store for assistance.

# SPECIFICATIONS

## CAMERA

TV System ..... EIA

Resolution ..... 380 TV lines

Pixel Array(HV) ..... 512 × 492

Auto Exposure ..... Up to $^{1}/_{100000}$ sec

Sensitivity ..... 0.5 Lux @ f/1.8

Noise ..... –48 dB

Lens (focal length, max. aperture) ..... 3.6mm, f/2.0

Viewing Angle ..... 92° diagonally

Audio Line Input Level ..... 630 ±30 mV

Audio Line Output Level:
750 ±50 mV at input 86 dB SPL to the microphone surface of the camera unit

Speaker Output Level (Camera On/Talk Mode, Dist. 30 cm):
≧78 dB SPL @30cm with input 86 dB SPL to the microphone surface of the distribution box

Distortion ..... ≦5%

Video Output ..... 1 Vpp, 75 ohms

Supply Voltage ..... 12VCD ±10 %

Supply Current ..... 400 mA, maximum

Camera Adjustment Angle ..... Left and Right: 90° (max.); To the rear: 45° (max)

## PIR

Warm Up Time ..... 80 seconds (max.)

Trigger Lock Time ..... 60 seconds ±20

Viewing Angle ..... Up to 110° at ∠82.4°F (28°C)

Detection Range ..... 26.3 ft (8 m), min., at ∠82.4°F (28°C)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

# NOTES

## Limited Ninety-Day Warranty

This product is warranted by RadioShack against manufacturing defects in material and workmanship under normal use for ninety (90) days from the date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. EXCEPT AS PROVIDED HEREIN, RadioShack SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED DIRECTLY OR INDIRECTLY BY USE OR PERFORMANCE OF THE PRODUCT OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING, BUT NOT LIMITED TO, ANY DAMAGES RESULTING FROM INCONVENIENCE, LOSS OF TIME, DATA, PROPERTY, REVENUE, OR PROFIT OR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF RadioShack HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow the limitations on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

In the event of a product defect during the warranty period, take the product and the RadioShack sales receipt as proof of purchase date to any RadioShack store. RadioShack will, at its option, unless otherwise provided by law: (a) correct the defect by product repair without charge for parts and labor; (b) replace the product with one of the same or similar design; or (c) refund the purchase price. All replaced parts and products, and products on which a refund is made, become the property of RadioShack. New or reconditioned parts and products may be used in the performance of warranty service. Repaired or replaced parts and products are warranted for the remainder of the original warranty period. You will be charged for repair or replacement of the product made after the expiration of the warranty period.

This warranty does not cover: (a) damage or failure caused by or attributable to acts of God, abuse, accident, misuse, improper or abnormal usage, failure to follow instructions, improper installation or maintenance, alteration, lightning or other incidence of excess voltage or current; (b) any repairs other than those provided by a RadioShack Authorized Service Facility; (c) consumables such as fuses or batteries; (d) cosmetic damage; (e) transportation, shipping or insurance costs; or (f) costs of product removal, installation, set-up service adjustment or reinstallation.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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